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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,661	09/27/2000	Lawrence W. Miller	104041-1	7892

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EXAMINER

WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1764

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DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/670,661

Applicant(s)

MILLER, LAWRENCE W.

Examiner

Alexis Wachtel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9-27-2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Specification

1. The disclosure is objected to because of the following informalities: Parent case 09/378,416 has been allowed as US 4,166,382. Applicant must update the status of the Parent Application by way of an amendment to the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant does not clearly differentiate between a lower sub-adjacent reaction zone and dense phase zone. Examiner will assume for the purposes of examination that Applicant intends for both the dense phase zone and sub-adjacent reaction zone to be located in the same area in the reactor.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,2,4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,849,091 to Cabrera et al.

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Cabrera et al discloses a catalyst regenerator corresponding to Applicant's fluid bed apparatus:

Regarding Applicant's Claim 1, Carbera et al disclose:

- A **reaction vessel** (Fig. 2, entire image) defining a **disengaging zone** (Fig. A),

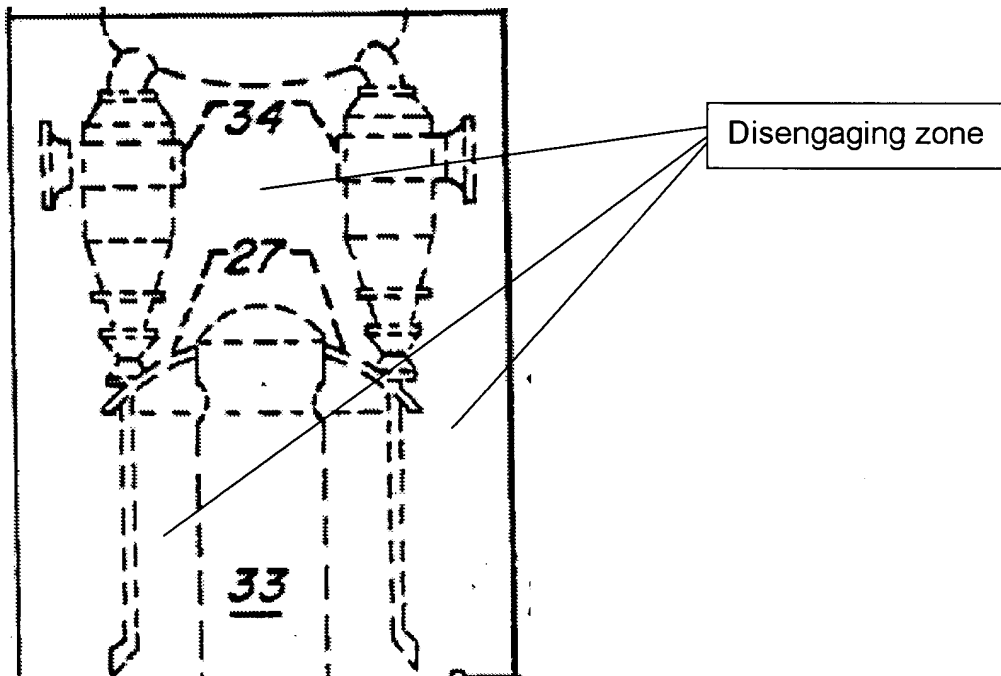
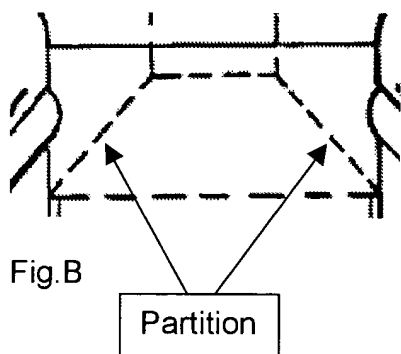


Fig.A

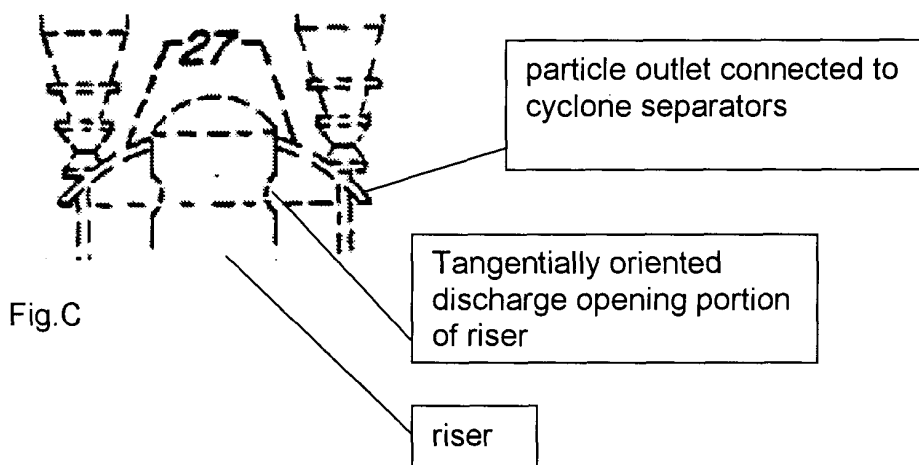
a **lower subadjacent reaction zone** (also a dense phase zone) (Fig.2, item 25), a **product outlet** (Fig. 2, item 36) for withdrawing the product stream from the disengaging zone, and a **feed inlet** (interface between Fig.2, items 22 and 24) communicating with the lower reaction zone; (Per the applied prior art, Examiner notes that in Cabrera et al, item 22 is identified as a mixing riser, but functions to transport feed into lower reaction zone (dense phase zone).

- a **partition** sealingly disposed about an intermediate portion of the reaction vessel to segregate the reaction zone from the disengaging zone (Fig.B)



- a **riser** (Fig. 2, item 33) extending vertically within the reaction vessel from the reaction zone into a central section of the disengaging zone, in fluid communication with the reaction zone, for conducting the product stream and fluidized catalyst particles and defining a discharge opening within said disengaging zone for discharging the product stream and fluidized catalyst particles, said discharge opening being tangentially oriented for imparting a tangential velocity to the product stream and fluidized catalyst particles (see Fig.C);
- a separation vessel (Fig.2, item 27) disposed over said riser in the disengaging zone and surrounding said discharge opening to separate gaseous products from fluidized catalyst particles, said separation vessel having a lower portion defining a particle outlet for discharging fluidized catalyst particles and said separation vessel defining a gas recovery outlet for withdrawing gaseous fluids from the separation vessel; (Per the relied upon prior art, Examiner interprets "riser outlet 27" as a separation vessel since said "riser outlet" separates gas and catalyst C13/L44-46. Additionally, since the riser outlet passes catalyst particles into cyclone separators, a

particle outlet is necessarily present for without it there can be no physical interface with said cyclone separators. Fig.C illustrates the relied upon prior art's particle outlet:



- a **dense phase zone 25** defined by a portion of the reaction zone located below said intermediate portion of the reaction zone; (Per the applied prior art, Examiner notes that the combustor zone has been interpreted as a dense phase zone since 25 has a higher density of catalyst than the riser regeneration zone C4/L20-23).
- at least one **catalyst re-circulation standpipe 17'** for conveying fluidized catalyst particles from the disengaging zone to the dense phase zone; (Per the relied upon prior art, Fig.2 displays an unlabeled pipe corresponding identically to the pipe labeled 17' in Fig.1)
- a **spent catalyst standpipe 26** in fluid communication with the disengaging zone for removing fluidized catalyst particles from the disengaging zone;
- a **regenerated catalyst standpipe 21'** for delivering regenerated catalyst particles to an intermediate portion of the reaction zone

Per claim 2:

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- a **feed distributor** (Fig. 2, item 24) disposed over the feed inlet supporting a dense phase zone in the lower reaction zone;

Per claim 4:

- at least one **cyclone separation stage** 34 located within the disengaging zone in fluid communication with the gas recovery outlet

Per claim 5:

- wherein the **gas recovery outlet** (also referenced as separation vessel) (Fig.2, item 27) is in fluid communication with at least one cyclone separation stage, the cyclone separation stage being in fluid communication with the product outlet; (Per the applied prior art, Examiner notes that since the separation vessel defines the gas recovery outlet, it is logical to structurally equate the separation vessel and gas recovery outlet.)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,849,091 to Cabrera et al in view of US 3,919,115 to Stine et al.

Per claim 3, while Cabrera et al teaches the use of a distribution device (24, C11/L39), the reference as set forth above fails to teach a specific feed distributor comprising a flat sieve plate disposed over a feed inlet supporting a dense phase zone.

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Stine et al teaches that distribution devices in the form of a metal plate containing holes or slots are frequently employed in the reactor art(C7/L44-50). In view of this teaching it would have been obvious for one of ordinary skill to have used the regeneration gas feed distributor disclosed by Stine et al instead of the distributor disclosed by Cabrera et al since Stine et al's distributor is equivalently suitable.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Alex Wachtel, whose number is (703)-306-0320. The Examiner can normally be reached Mondays-Fridays from 10:30am to 6:30pm.

If attempts to reach the Examiner by telephone are unsuccessful and the matter is urgent, the Examiner's supervisor, Mr. Glenn Caldarola can be reached at (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Alex Wachtel

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Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700